

41 ~~2~~. An antisense oligonucleotide for treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer, said oligonucleotide being directed against a nucleic acid sequence coding for a common subunit of the IL-3, IL-5 and GM-CSF receptors.

42 ~~2~~. The oligonucleotide of claim ⁴¹~~1~~, wherein the nucleic acid sequence coding for the receptor is a nucleic acid coding for the common beta sub-unit of the IL-3, IL-5 and GM-CSF receptors.

43 ~~3~~. The oligonucleotide of claim ⁴¹~~1~~, wherein said oligonucleotide has a sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, , SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22 and SEQ ID NO:23.

44 ~~4~~. A pharmaceutical composition for treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer, said composition comprising at least one antisense oligonucleotide as defined in claim ⁴¹~~1~~, ⁴²~~2~~ or ⁴³~~3~~, in association with a pharmaceutically acceptable carrier.

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45. A method for treating and/or preventing asthma, allergy, general inflammation or cancer, said method comprising the step of administering an effective amount of an oligonucleotide as defined in claim ⁴¹1, ⁴²2 or ⁴³3, to a patient in need of such a treatment.

46. A pharmaceutical composition comprising at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors and at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors.

47. The pharmaceutical composition according to claim ⁴⁶46, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16.

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48 ~~8~~. The pharmaceutical composition according to claim ^{4b}~~8~~, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

49 ~~9~~. The pharmaceutical composition according to claim ^{4b}~~9~~, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16 and at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

50 ~~10~~. The pharmaceutical composition according to claim ^{4b}~~10~~, further comprising at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor.

51 ~~11~~. The pharmaceutical composition according to claim ⁵⁰~~11~~, wherein at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

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52¹². A pharmaceutical composition comprising at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor.

53¹³. The pharmaceutical composition according to claim ⁵²12, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16.

54¹⁴. The pharmaceutical composition according to claim ⁵²12, wherein at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

55¹⁵. ⁵²The pharmaceutical composition according to claim ⁵²12, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16 and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

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5^b
16. A pharmaceutical composition comprising at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor.

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17. 5^b The pharmaceutical composition according to claim 16, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

58. 5^b The pharmaceutical composition according to claim 16, wherein at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

59. 5^b The pharmaceutical composition according to claim 16, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7, and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

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620. A method of treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer, the method comprising administering to a patient at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors and at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors.

61/21. The method according to claim ⁶⁰20, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16.

62/22. The method according to claim ⁶⁰20, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

63/23. The method according to claim ⁶⁰20, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16; and at least one oligonucleotide directed

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against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

64²⁴. A method of treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer, the method comprising administering to a patient at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors, at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors, and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor.

65²⁵. The method according to claim ⁶⁴24, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16.

66²⁶. The method according to claim ⁶⁴24, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

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67²⁷. The method according to claim ⁶⁴24, wherein at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

68²⁸. The method according to claim ⁶⁴24, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16; at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO: 6, and SEQ ID NO:7; and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO: 20, SEQ ID NO:22, and SEQ ID NO:23.

69²⁹. A method of treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer, the method comprising administering to a patient at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor.

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70⁶⁹20. The method according to claim 29, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16.

71⁶⁹31. The method according to claim 29, wherein at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

72⁶⁹32. The method according to claim 29, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16; and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

73⁶⁹33. A method of treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer, the method comprising administering to a patient at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and

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IL-13 receptors and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor.

74 24. The method according to claim ⁷³ 23, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

75 35. The method according to claim ⁷³ 32, wherein at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

76 36. The method according to claim ⁷³ 33, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7; and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

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